

## Foreword

Investigating, remediating, and closing hazardous, toxic, and radioactive waste (HTRW) sites is complex. On many occasions, new people get involved in a project and site conditions or remediation progress is unknown when efforts begin. Progress at a site is iterative as more is learned about a site, and as regulatory and legal issues are identified and resolved.

This manual describes the Technical Project Planning (TPP) process for identifying project objectives and designing data collection programs at HTRW sites. The TPP process was developed to provide comprehensive planning guidance to ensure effective and efficient progress to site closeout within all project constraints. Chapters 1 through 4 describe how to conduct Phase I through Phase IV of the TPP process, respectively. Chapter 5 describes implementation and assessment of data collection programs resulting from the use of the TPP process.

The following discussions offer a uniform technical basis for the broad range of readers using this manual and the TPP process.

### What is the TPP process?

The TPP process is a systematic process that involves four phases of planning activities. Phase I activities bring together a TPP team to identify the current project and to document both short- and long-term project objectives through completion of all work at a site (site closeout). Phase II efforts involve an evaluation to determine if additional data are needed to satisfy the project objectives. The data need requirements for the additional data are then identified during the balance of Phase II efforts. Phase III activities involve identifying the appropriate sampling and analysis methods for

the data needed. During Phase IV, the TPP team finalizes a data collection program that best meets the customer's short- and long-term needs within all project and site constraints.

### When is the TPP process needed?

The TPP process is needed when initially planning any activities at a site (i.e., investigation; design; construction, operation and maintenance; or long-term monitoring). The TPP process should be used immediately after a customer requests that a project be performed at a site and also when planning the next executable stage of site activities.

### Key Terms and Concepts

Readers of this manual and users of the TPP process are encouraged to become familiar with the following key terms and concepts.

#### TPP Team

The TPP team is identified during Phase I, and works together throughout the TPP process and the subsequent execution of the work. The TPP process requires a multi-disciplinary team of personnel to represent the following planning perspectives.

- **Decision Makers** (i.e., customer, project manager, regulators, and stakeholders). Decision makers each have specific interests in the outcome of site-related activities. The most important responsibility of each decision maker is to participate in the team's efforts to identify and document project objectives during Phase I. As deemed appropriate by the customer, the regulators and stakeholders may also contribute to TPP activities during Phases II through IV. (The **customer** is the person representing the federal agency or sponsor, who is funding the project and responsible for completing work at the site or facility.)

- **Data Users** (i.e., risk, compliance, remedy, and responsibility perspectives). Data users are the technical and other personnel responsible for engineering, scientific, and legal evaluations that are the basis for site decisions. Data users participate throughout the TPP process. Their primary responsibilities occur during Phase I and Phase II when they identify the data needed to satisfy the project objectives that require additional data collection. Several technical disciplines typically must collaborate to adequately represent these data user perspectives:

**Risk Perspective**

(evaluates potential risks to human health and the environment);

**Compliance Perspective**

(evaluates, monitors, and ensures legal and regulatory compliance);

**Remedy Perspective**

(identifies, designs, constructs, operates, and maintains site remediation systems); and

**Responsibility Perspective**

(focuses on the customer's potential liability and the apportionment of responsibility with other potentially responsible parties).

- **Data Implementors** (i.e., sampling and analysis perspectives). Data implementors are the technical personnel who are responsible for identifying sampling and analysis methods suitable for satisfying the data users' data needs. Both sampling and analysis types of data implementors participate throughout the TPP process with their primary responsibilities occurring during Phase I and Phase III.

**Site Closeout**

Site closeout is achieving the "walk away goal," or final condition of a site, as envisioned by the customer. Site closeout represents achieving either an interim final condition (e.g., expedited removal, remediation with 5-year reviews) or final completion of all work at a site. During Phase I, the TPP team develops an effective site closeout statement after considering future land use of the site; the site's regulatory compliance status and issues; and the customer's preferences for the final condition of the site. A good definition of site closeout enables the TPP team to focus planning and site activities from the current site status and condition through any necessary remediation; operation and maintenance; or monitoring efforts.

**Project Objectives**

Project objectives must be satisfied or resolved in order to progress from the current site status and condition to site closeout. Satisfying or resolving the project objectives, based on the underlying regulations or site decisions, is the purpose of all site activities. Phase I efforts to identify and clearly document project objectives will ensure that the team establishes the focus required to successfully address the site-specific regulatory status and environmental conditions. Although many project objectives are a consequence of the applicable federal, state, and local regulations, several other customer- or site-specific project objectives may need to be documented to ensure efficient progress to site closeout. If project objectives are either vague or undefined, it is unlikely that meaningful progress can be made toward achieving site closeout. Once all project objectives have been identified, and both customer and regulator concurrence is obtained, the team works to group the project objectives in relation to current and future executable stages of site activities through site closeout.

### **Basic, Optimum, and Excessive**

Basic, optimum, and excessive are simple terms used during the TPP process for classifying project objectives and grouping data needs. Although these terms are simple, their use is very powerful throughout the TPP process.

- **Basic** Basic project objectives and data needs are related to the current project. During the end of Phase I, the TPP team identifies the current project and the corresponding “basic” project objectives. Data need requirements for the current project, as identified by various data user perspectives during Phase II, are then grouped together as the “basic” data collection option during Phase III. During Phase IV, the project manager and technical personnel present the “basic” data collection option for the customer’s consideration.
- **Optimum** Optimum project objectives and data needs are anticipated for future executable project stages. Once the current project has been identified during the end of Phase I, those project objectives associated with future executable project stages are classified as “optimum” project objectives. Data need requirements for future executable stages, as identified by various data user perspectives during Phase II, are then grouped together as the “optimum” data collection option during Phase III. (Data needs grouped within the “optimum” data collection option represent only those data needs that would be cost-effective and prudent to fulfill during the current project even though the data use(s) is related to a subsequent executable stage of site activities.) During Phase IV, the project manager and technical personnel present the “optimum” data collection option for the customer’s consideration.

- **Excessive** Excessive project objectives and data needs are neither related to the current project nor future executable project stages. A project objective is classified as “excessive” when it does not lead to site closeout. “Excessive” data needs are identified during Phase II when data users realize that select data needs, imposed or mandated by others, are not required to satisfy the basic or optimum project objectives. “Excessive” data needs exceed data need requirements of data users, but are grouped together during Phase III. During Phase IV, the customer is briefed about technical and financial issues related to the “excessive” data collection option.

### **Data Quality Objectives (DQOs)**

Preparation of DQO statements during Phase IV is the culmination of many TPP activities. DQOs become formal documentation of the data quality requirements. Effective use of DQOs yield data of known quality, document the planning process, and establish a benchmark to determine if data obtained from the site actually meet the specified data need requirements of the data users. DQOs produced as a result of the TPP process meet the U.S. Environmental Protection Agency’s definition of a DQO and are project-specific statements that include these nine data quality requirements:

- (1) Project objective(s) satisfied;
- (2) Data user perspective(s) satisfied;
- (3) Contaminant or characteristic of interest identified;
- (4) Media of interest identified;
- (5) Required sampling areas or locations and depths identified;
- (6) Number of samples required;
- (7) Reference concentration of interest or other performance criteria identified;
- (8) Sampling method identified; and
- (9) Analytical method identified.

### **Communication Strategy**

This manual and the TPP process clearly advocate communication and documentation across a TPP team. Beyond using the TPP process, each TPP team should develop a communication strategy that will work for the entire TPP team. Open, timely, and effective communication between the customer, project manager, technical personnel, regulators, stakeholders, contractors, and laboratory representatives will result in a successful project, independent of the complexity of a site or a site's issues. Some considerations related to developing a communication strategy are as follows.

- How often, and by what means, does the customer want to receive updates regarding TPP efforts and project efforts?
- How will communications with regulators and stakeholders be maintained and who does the customer authorize for direct communications, if anyone?
- How will worksheets, graphics, or tables be used to improve the distribution of site information, data, and site decisions?
- How will information and resources be shared electronically (e.g., telephone facsimile, electronic mail, express mail, restricted Internet site)?
- Should communication templates be developed and included within work plans to ensure the entire team becomes involved in developing, implementing, and maintaining effective methods of communicating information?
- How will the communication strategy and communication requirements be specified within scope of work documents to ensure they are included in cost estimates?
- What, if any, decisions has the customer specifically indicated the team has the customer's authority to either make or communicate with other parties?

### **Tenets of TPP Process**

The TPP process offers the project manager, technical personnel, customer, regulators, and stakeholders a systematic planning process for identifying project objectives and designing data collection programs at small, simple sites as well as large, complex sites. This manual and the TPP process expect a team to:

- Use the TPP process to establish an effective team, open communications, and document specific project objectives;
- Consider the consequences of unacceptable decisions or decision errors;
- Consider the data quality requirements;
- Consider data collection approaches, including when expedited site characterization and field analytical and screening methods would be appropriate;
- Decide how data needs can be balanced within project cost and schedule constraints;
- Present data collection options for the customer's consideration; and then
- Ensure that institutional site knowledge can be transferred to new people involved with a site through the use of various TPP planning documents and worksheets.

Those individuals with experience using the TPP process are expected to provide the customer, project manager, regulators, stakeholders, and other technical personnel an introduction to the TPP process and this manual, when beginning to use the TPP process for a site. In many instances, it can be useful to use the services of an independent TPP facilitator to support and guide a team's application of the TPP process.

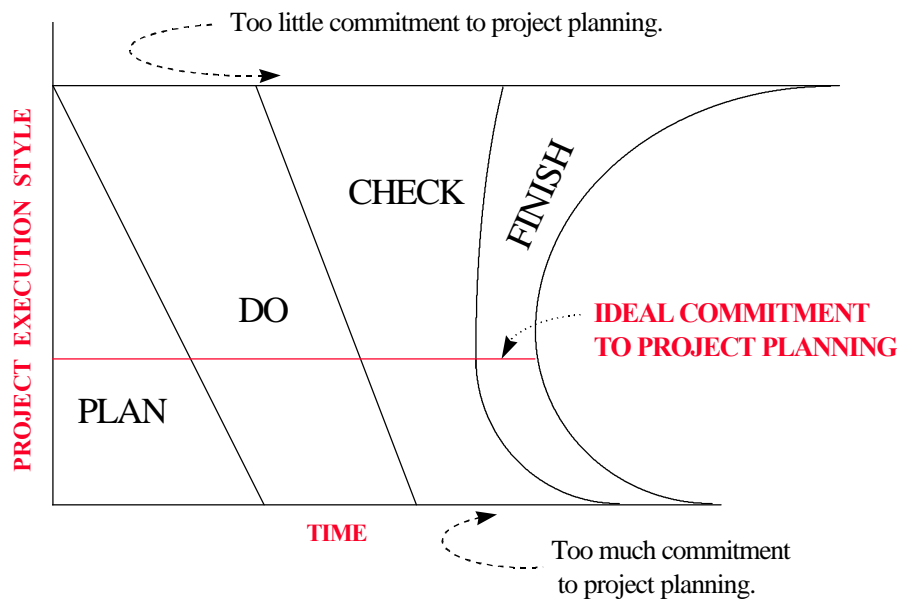
### Effective and Timely Planning

A premise of the TPP process is that each individual contributing to a project has his/her own project execution style. Some individuals begin site activities before planning, others exhibit an ideal commitment to planning, and some individuals may tend to over-plan project activities. The systematic TPP process enables a project manager to achieve an appropriate balance of project execution styles within a team and ultimately accelerate overall progress to site closeout. The entire TPP team will find that time spent planning reduces expensive time and efforts during the “do,” “check,” and “finish” stages of any project.

In some instances, TPP teams have learned that a series of half-day meetings are sufficient for performing segments of the TPP process. In other instances, an outside facilitator has introduced the TPP process to a TPP team and then helped the TPP team to apply the process and capture the TPP plans for a project.

Figure 1 illustrates the following benefits of effective and timely planning:

- Less time is expended to “check” and “finish” a well planned project; and
- Less overall time (and money) is expended when early efforts are focused and the team strives to optimally plan a project.



**Figure 1**  
**Effects of Optimal Planning** (Nayatani 1994)